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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/010,149	11/12/2001	Robert F. Evans	FCI-2580/C2977	7215

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EXAMINER

HARVEY, JAMES R

ART UNIT

PAPER NUMBER

2833

DATE MAILED: 07/16/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No.	Applicant(s)
	10/010,149	EVANS, ROBERT F.
Examiner	Art Unit	
James R. Harvey	2833	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### **Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

1)  Responsive to communication(s) filed on 30 April 2003.

2a)  This action is **FINAL**.                    2b)  This action is non-final.

3)  Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## **Disposition of Claims**

4)  Claim(s) 1-29 is/are pending in the application.  
4a) Of the above claim(s) 25-29 is/are withdrawn from consideration.  
5)  Claim(s) \_\_\_\_\_ is/are allowed.  
6)  Claim(s) 1-24 is/are rejected.  
7)  Claim(s) \_\_\_\_\_ is/are objected to.  
8)  Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

9)  The specification is objected to by the Examiner.

10)  The drawing(s) filed on 08 March 2002 is/are: a)  accepted or b)  objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)  The proposed drawing correction filed on \_\_\_\_\_ is: a)  approved b)  disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)  The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

13)  Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)  All b)  Some \* c)  None of:

1.  Certified copies of the priority documents have been received.
2.  Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3.  Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

14)  Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a)  The translation of the foreign language provisional application has been received.

15)  Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

1)  Notice of References Cited (PTO-892)      4)  Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_  
2)  Notice of Draftsperson's Patent Drawing Review (PTO-948)      5)  Notice of Informal Patent Application (PTO-152)  
3)  Information Disclosure Statement(s) (PTO-1449) Paper No(s) 7.      6)  Other: \_\_\_\_\_

***DETAILED ACTION***

***Information Disclosure Statement***

- The Information Disclosure statement(s) and related documents that were filed on 3-1-02 have been considered.

***Election/Restrictions***

- Applicant's election of claims 1-24 in Paper No. 9 is acknowledged. Applicant argument concerning that all the claims are amenable to being examined without imposing a serious burden on the examiner is not found to be persuasive.

This argument is not found persuasive because the serious burden is evidenced by the different inventions and the different classification within the United States Patent and Trademark Office's classification system. It is clearly a burden for an examiner that is not trained or experienced in a particular class to complete a quality examination because the examiner lacks a knowledge of the prior art in that particular class and the distinct elements associated with the prior art of that particular class.

In order for applicant to receive a quality examination for both inventions, an examiner trained and skilled in the prior art each invention needs to evaluate the meets and bounds of claims in view of the known prior art of that particular class. Simply lumping all the complexities associated with the different inventions into one examination (knowing that the United States Classification system separates them into two distinct classes) fails to provide the quality that the public and applicant expect and deserve from the United States Patent and Trademark Office.

Art Unit: 2833

- The requirement is still deemed proper and is therefore made FINAL

### *Drawings*

- The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims.
  - In reference to claim 3, the “solder balls” are not shown.
- **Please note that drawing corrections will no longer be held in abeyance. A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application.**
- **If drawing correction are not submitted with the response to this office action, the response will be consider a Non-Responsive Reply and the following paragraph will apply:**

The reply filed on ( ...) is not fully responsive to the prior Office Action because: (...) Since the period for reply set forth in the prior Office action has expired, this application will become abandoned unless applicant corrects the deficiency and obtains an extension of time under 37 CFR 1.136(a).

The date on which the petition under 37 CFR 1.136(a) and the appropriate extension fee have been filed is the date for purposes of determining the period of extension and the corresponding amount of the fee. In no case may an applicant reply outside the SIX (6) MONTH statutory period or obtain an extension for more than FIVE (5) MONTHS beyond the date for reply set forth in an Office action. A fully responsive reply must be timely filed to avoid abandonment of this application.

### *Claim Objections*

- The following objections to the claims are noted below:
  - In reference to claim 7, the limitation “adjacent” conflicts with claim 1 that requires the ground plane to be on “one planar surface” and the signal conductor to be “disposes on the

opposing planar surface". For purposes of examination, it is assumed that applicant intended to claim "parallel" instead of "adjacent".

-- Appropriate correction of the above is required.

***Claim Rejections - 35 USC § 102***

- The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

\*\* Claim(s) 1,3,4,6,7,9-14 are rejected under 35 U.S.C. 102(b) as being anticipated by Paagman (6083047).

-- In reference to claim 1, Paagman shows (figure 20a) a substantially planar dielectric 31; a substantially planar ground plane (36, 38) (column 5, line 31) disposed on one planar surface 38 (column 5, lines 23 –25, "back surface") of the dielectric; and a signal conductor 32 disposed on the opposing planar surface of the dielectric.

-- In reference to claim 3, Paagman shows the dielectric comprises a recess 2 that can be used for receiving a solder ball for a ball grid array connection to a circuit card (column 4, lines 19-25).

-- In reference to claim 4, Paagman shows (figure 2) the dielectric comprises a finger (column 5, lines 6-9) extending substantially in the plane of the dielectric, the signal conductor extending along the finger (column 5, line 5).

-- In reference to claim 6, Paagman shows (figure 20a) the ground plane (36, 38) is substantially continuous (column 5, lines 20-24) and the signal conductor comprises a plurality of coplanar differential pairs of signal conductors 32.

-- In reference to claim 7, Paagman shows each signal conductor 32 is located parallel to the continuous ground plane (36, 38).

-- In reference to claim 9, Paagman shows (figure 20a) a portion 36 of the ground plane is on the dielectric.

In reference to the limitation "plated and etched onto the dielectric" The method of forming, the device is not germane to the issue of patentability of the device itself. Therefore, this limitation has not been given patentable weight.

-- In reference to claim 10, Paagman shows (figure 8a) the signal conductor 32 comprises a signal contact pin 44.

-- In reference to claim 11, Paagman shows (figure 20a) a portion of the signal conductor is on the dielectric.

In reference to the limitation "plated and etched onto the dielectric" The method of forming, the device is not germane to the issue of patentability of the device itself. Therefore, this limitation has not been given patentable weight.

-- In reference to claim 12, Paagman shows the signal conductor 32 comprises a first section (front section ) and a second section (rear section ) disposed approximately ninety degrees to the first section.

-- In reference to claim 13, Paagman shows the signal conductor comprises a differential pair of signal conductors 32.

-- In reference to claim 14, Paagman shows (figure 20a) each signal conductor 32 is located in a first plane substantially parallel to the ground plane and each signal conductor comprises a signal contact pin 41 (figure 8a ) located in a second plane substantially orthogonal to the ground plane.

\*\* Claim(s) 1,4,5,13-24 are rejected under 35 U.S.C. 102(e) as being anticipated by Kline (6461202).

The applied reference has a common assignee with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention "by another," or by an appropriate showing under 37 CFR 1.131.

-- In reference to claim 1, Kline shows (figure 4 ) a substantially planar dielectric 86; a substantially planar ground plane 84 disposed on one planar surface of the

dielectric; and a signal conductor 88 disposed on the opposing planar surface of the dielectric ((column 3, lines 60-63) or (claim 13).

-- In reference to claim 4, Kline shows wherein the dielectric comprises a finger 166 (figure 5) extending substantially in the plane of the dielectric, the signal conductor 96 extending along the finger. In reference to the limitation "in the plane", while the specification and claim imply that the intention was to claim that *the finger is contained within the plane*. If applicant wishes patent protection for *the finger being contained within the plane*, applicant must amend the claim in a manner consistent with that limitation.

-- In reference to claim 5, Kline shows (figure 4 ) the ground plane 84 comprises a plurality of ground contact pins 158 extending from an end thereof.

-- In reference to claim 13, Kline shows (figure 4 ) the signal conductor 88 comprises a differential pair of signal conductors (column 3, lines 60-64).

-- In reference to claim 14, Kline shows each signal conductor is located in a first plane substantially parallel to the ground plane and each signal conductor comprises a signal contact pin 96 located in a second plane substantially orthogonal to the ground plane.

-- In reference to claim 15, Kline shows the signal conductor 92 comprises a plurality of differential pairs of signal conductors and conductors within a differential pair of signal conductors are located closer than conductors of two adjacent differential pairs (figure 4).

-- In reference to claim 16, Kline shows (figure 4 ) a plurality of connection modules (cover sheet) located substantially parallel to each other, each module comprising: a substantially planar dielectric 86; a substantially planar ground plane 84 disposed

on one planar surface of the dielectric; and a signal conductor 88 disposed on the other planar surface of the dielectric.

-- In reference to claim 17, Kline shows for each connection module, the signal conductor comprises a plurality of differential pairs of signal conductors (column 3, lines 60-64).

-- In reference to claim 18, Kline shows for each connection module, each signal conductor 98 is located in a first plane substantially parallel to the ground plane 86 and each differential pair of signal conductors comprises a pair of signal contact pins 96, each pair of signal contact pins located in a plane substantially orthogonal to the ground plane.

-- In reference to claim 19, Kline shows for each connection module, the ground plane comprises a ground contact pin 158 for each differential pair of signal conductors 92 and each ground contact pin 158 is located substantially coplanar (figure 6) with a corresponding pair of signal contact pins.

-- In reference to claim 20, Kline shows

    a plurality of connection modules (cover sheet) located substantially parallel to each other, each module comprising: a substantially planar dielectric 86; a substantially planar ground plane 84 disposed on one planar surface of the dielectric; and a plurality of differential pair signal conductors 88 disposed on the other planar surface of the dielectric, for each connection module, each signal conductor is located in a first plane substantially parallel to the ground plane and each differential pair of signal conductors comprises a pair of signal contact pins 96, each pair of signal contact pins located in a plane substantially orthogonal to the ground plane, and the ground plane comprises a

ground contact pin 158 for each differential pair of signal conductors and each ground contact pin is located substantially coplanar with a corresponding pair of signal contact pins (figure 3); and a receptacle connector 22 (cover sheet) comprising:

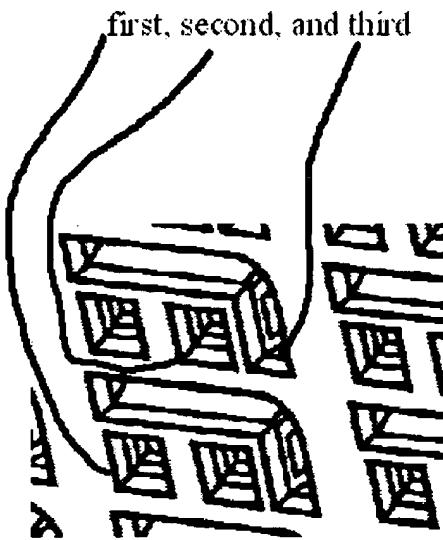
a plurality of receptacles contacts (24, 26) for receiving the signal contact pins and the ground contact pins.

-- In reference to claim 21, Kline shows (cover sheet) the plurality of receptacle contacts 24 are substantially cylindrical shaped.

-- In reference to claim 22, Kline shows ((cover sheet) and (figure 6 ) the plurality of receptacle contacts are arranged into an array of rows and columns.

-- In reference to claim 23, Kline shows (see examiner's figure) the columns are arranged in repeating patterns of first, second, and third columns and the first and second columns are spaced farther apart than the second and third columns.

-- In reference to claim 24, Kline shows the (figures 4 and 6) columns are arranged in repeating patterns of first, second, and third columns and the first and second columns are for connection to differential pair signal contact pins and the third column is for connection to ground contact pins.



***Claim Rejections - 35 USC § 103***

- The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

\*\* Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Paagman in view of The American Heritage Dictionary.

-- In reference to claims 2, Paagman shows substantially the invention as claimed. However, Paagman does not show that the dielectric substrate comprises polyimide.

The American Heritage Dictionary teaches that polyimide is used primarily as a coating or film on a substrate (see attached definition from The American Heritage Dictionary).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the teachings of The American Heritage Dictionary to improve the dielectric substrate of Paagman because, as taught by The American Heritage Dictionary, polyimide improves the dielectric substrate's resistance to the wear that is associated with installing and reinstalling the faulty modules of Paagman.

\*\* Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Paagman.

-- In reference to claim 8, Paagman shows substantially the invention as claimed. However, Paagman does not show that the ground plane comprises phosphor bronze.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to choose the ground plane to be comprised of phosphor bronze, since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use. *In re Leshin*, 125 USPQ 416 (CCPA 1960). One skilled in the art would be motivated to choose phosphor bronze because it is a good conductor of electricity that it is less expensive than other conductors that contain a higher percentage of the expensive copper.

### *Conclusion*

Effective May 1, 2003, the United States Patent and Trademark Office has a new Commissioner for Patents address. Correspondence in patent related matters must now be addressed to:

**Commissioner for Patents**

**P. O. Box 1450**

**Alexandria, VA 22313-1450**

For additional information regarding the new address, see Correspondence with the United States Patent and Trademark Office, 68 Fed. Reg. 14332 (March 25, 2003).

- The prior art listed on PTO form 892 that is made of record and not relied upon is considered pertinent to applicant's disclosure because it shows the state of the art with respect to applicant's claimed invention.
- Any inquiry concerning this communication or earlier communications from the examiner should be directed to James R. Harvey whose telephone number is 703-305-0958. The examiner can normally be reached on 8:00 A.M. To 5:00 P.M.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paula A. Bradley can be reached on 703-308-2319. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9318 (OFFICAL/BEFORE FINAL) and 703-872-9319 (OFFICAL/AFTER FINAL).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

James R. Harvey, Examiner

jrh  
July 9, 2003

  
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PRIMARY EXAMINER

10/010149

## polyimide

**polyimide** (pōl'ē-īm'īd') *noun*

A synthetic polymeric resin of a class resistant to high temperatures, wear, and corrosion, used primarily as a coating or film on a substrate substance.

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